endemic, yet much material is accumulated during these expeditions which can only be worked out subsequently. As the laboratory accommodation is insufficient to accommodate all this material, a research department under a special director has been established at Runcorn, where ample room for animals and laboratory experiments exists. These laboratories also supply parasites in a living condition for the purposes of study in the teaching laboratories. Here numerous experiments have been and are being carried out in the treatment of sleeping sickness (trypanosomiasis). It was Thomas who first suggested atoxyl in the treatment of trypanosomiasis. This, followed by mercury, is probably the most hopeful treatment now in existence.

We may finally briefly refer to the laboratories, where the public, no less than by the expeditions, benefits by the training of medical men, already stationed in or about to proceed to the tropics. In fact, it is stated in its prospectus that the first of the objects of the school is to give a practical training to medical men proceeding to the tropics. In connection with this training, which is as thorough as the too-brief period of three months will allow, about thirty medical men pass through the school in the year, a number which is not too great for the staff successfully to cope with.

THE YEAR'S PHOTOGRAPHY.

THE annual exhibition of the Royal Photographic Society is now open at the New Gallery in Regent Street, and will remain open until September 26. Artistic, professional, and commercial photography are well represented, but we are concerned chiefly with the scientific and technical sections. The exhibition aims at showing the year's progress, and as the item that has aroused the most interest since last October is the commercial introduction of the Lumière "autochrome" plate, which serves for the copying of coloured objects in colour on a single plate, photographs by this method form the most conspicuous group in the exhibition. The results are transparencies on glass, and are conveniently arranged for viewing them in a darkened portion of the balcony. The character of the new plates has already been described in these columns, therefore it is sufficient to say here that they depend upon the usual principles of three-colour work, and that their novelty consists in having each plate complete in itself, and needing no instrument, taking or viewing screen, or other special accessory for their use or examination. Messrs. Lumière are to be congratulated on their success, and well deserve the medal that has been awarded them. As to the results, some appear to be excellent, while others must be faulty from the predominance of one of the three colours; but, as we have so often said before in connection with colour work, it is impossible to judge of the results as one would like to be able to unless the original is side by side with the copy. No exhibitor seems to have cared to submit any of his pictures to this test. This remark also applies to the other colour photographs, which demonstrate that the multiple-plate methods still hold their own, and that the standard of perfection has, perhaps, a tendency to rise. Photomicrographs of the grain of the "autochrome" plates and spectra taken on them are on view, and serve to show the limitations of three-colour processes when dealing with the comparatively unmixed colours of the spectrum.

Some of the photographs of Mars, taken two months ago at the Lowell Observatory, are shown by Profs. Lowell and Lampland. Several canals are visible, and one has been photographed double. Drawings of the planet made under high magnification are added for the sake of comparison. The Greenwich Observatory send four frames of work done during the year, which include the recent comet, Saturn and its satellite Phœbe, and Jupiter and its satellites VI. and VII. These astronomical exhibits will prove of great interest, not only to those who are students of the subject, but also to those whose chief source of information is their daily paper.

Of the considerable collection of photographs of living creatures it is possible to refer to only a few. Mr. Douglas English contributes a series of photographs illustrating the life and history of the British mud-wasp, but his most striking exhibits are those in which he has obtained a very close imitation of the colour of the original by locally modifying the image with reagents, and in one case backing it with "metallic powders." He is bold enough to send the actual skin in one case to show how very nearly he has reproduced the colour. Notwithstanding Mr. English's success, we are inclined to discourage work of this kind, because by such manipulation the examples lose much of their value as photographs, and it is very doubtful as to how long the colours produced in this way will remain without change; but it must be admitted that at present they convey an excellent idea of the originals. Among the other exhibits of special interest may perhaps be mentioned Mrs. Veley's "Lemur Studies," Mr. W. Bickerton's three photographs of the common tern alighting at its nest after flight, and Mr. Alfred Taylor's ten photographs of the "Long-eared Owl from the Egg to Maturity." Mr. Daniel Finlayson's three frames are of a kind that must be exceedingly useful for teaching purposes. He shows the leaves of four common plants "awake and asleep," five photographs illustrating "Red Clover strangled by Dodder," and ten distinct examples of "Seed Dispersal by Hooks, Parachutes, and Wings."

Pathological work is not much in evidence, but the majority of visitors will doubtless find a personal interest in Dr. G. H. Rodman's radiograph of the two hands of a young lady, one of which was severely affected by rheumatism. The small bones of the diseased wrist are apparently matted together. Mr. Martin Duncan's photomicrographs of living bacteria are noteworthy, though for practical purposes of identification microscopists will probably continue to prefer to deal with dead "preparations." Mr. Duncan gives no hint of his method which he "has now perfected."

There are numerous other exhibits of many various subjects, for the collection of this year surpasses that of any previous year that we recollect in interest, variety, and general technical excellence; but we must refer to Mr. Frederick E. Ives's diffraction gratings, though they are not strictly photographic. These replicas are made with fish-glue instead of gelatin, and, by the means described in the catalogue, he has obtained, in addition to normal results, "freak gratings" of many different kinds. Not only can most of the light be thrown into the first-order spectrum on one side, but vigorous copies can be made from weak originals. A considerable variation of colour effects is shown in the "freaks," and may serve to indicate some of the possibilities of variations that may occur to a greater or less extent in gratings intended to give normal results. These gratings can be seen on application to the attendant by anyone interested in the subject.

Those who wish to see the results of the practical application of photographic methods to pictorial purposes will find a collection of excellent examples in the west room which is devoted to this section, and a

choice selection at the Gallery of the Royal Society of Painters in Water Colours, 5a Pall Mall East, this latter being the fifteenth annual exhibition of the Photographic Salon. In neither case is the method of production stated, so that it is not possible to know how much is pure photography nor whether any given example is likely to be reasonably permanent. It is, however, a noteworthy fact that, besides the platinum and carbon processes in their numerous variations, this year there are many "oil prints," that is, prints in which the image is produced in pigments prepared in oil, by the process introduced by Mr. G. C. H. Rawlins a year or two ago. It is satisfactory to note that as these processes that yield results of undoubted trustworthiness increase in number, there is a tendency for them to oust those that are less desirable.

C. J.

INTERNATIONAL SEISMOLOGICAL CONGRESS.

THE second conference of the International Seismological Association will be held at the Hague on September 21–25. The first two days will be occupied by the permanent commission, which will discuss the financial reports from the secretary and the director, election of officers, and other matters relating to general administration. The meetings of the general assembly will take place on September 24 and 25. Amongst matters of immediate seismological interest to be discussed we notice the question of establishing a station at Kashgar, seismological bibliography, the annual publication of a catalogue of earthquakes for the entire world, and the geographical distribution of sound phenomena which have had hypogenic origin. Other scientific questions which will receive consideration relate to the rapid publication of data relating to large earthquakes, the reduction of seismic elements to absolute values, and the reproduction of seismograms. Discourses and conferences relate to a catalogue of microseisms for the year 1904, and the earthquakes in that year which have been recorded throughout the world, together with the analysis of seismograms, the publication of seismograms obtained on August 16 and 17, 1906, and the new work now in progress at Strassburg Observatory. To carry out the above programme evidently means a full four days' continuous work.

From what we read in daily papers and magazines, it is clear that much haziness exists in the public mind as to how earthquakes came to have an international importance. The first successful attempt to treat earthquake phenomena in a scientific manner was undoubtedly due to the late Robert Mallett. Strange as it may sound, his work practically remained in abeyance until Japan, desiring to acquire some of the material civilisation of the west, invited to her shores people from all quarters of the globe. Although none of these was asked to give instruction relating to earthquake phenomena, none of them could refrain from giving serious attention to movements which were frequently, and we may even say rudely, brought to their notice. In 1880 a seismological society was established. The first important work accomplished by this society was to devise instruments which would measure earthquakes, the result of which was that constructors for the first time learned that earthquake forces could be expressed in definite mechanical units. This led to new types of structures, and these experience has shown will stand severe shakings whilst ordinary European structures seriously suffer. This issue of seismological investigation, inasmuch as it bears upon the safety of life and property, indicates that the study of earthquake phenomena is of more practical importance than is generally supposed. Among other outcomes of the study we may mention the determination of suboceanic sites where it would be fatal to lay a cable, the indication where certain cables have failed, and the collection of materials which enable those who insure to adjust rates to risks.

Whether the information bearing upon what may be called the "by-products" of seismological investigation will attract the attention of the International Association remains to be seen. Should it do so, then the British Government and the British investor may be compelled to go abroad to supply their wants. At present the work of the association is chiefly directed to that which is purely scientific, teleseismic records and their interpretation receiving the most attention. Since 1755 it has been recognised that a very large earthquake occurring in one country might give evidence of its existence in very distant regions by causing water in lakes or ponds to oscillate. In 1877 the oscillations of a bubble in a level at Pulkova were traced to an earthquake which destroyed Iquique. In 1884 cryptoseismic movement was frequently recorded in Japan. The late Dr. E. von Rebeur-Paschwitz also recorded these unfelt movements, which he traced to definite seismic centres.

In connection with the history of international seismological cooperation, it may be here mentioned that one of the first attempts to obtain the same was made in 1883 through his Excellency the late Sir Harry Parks and the Foreign Office of Japan. In 1895 attempts to repeat the same came from Japan and from Germany; the first successful attempt was that undertaken by the British Association in 1897, which now enjoys the cooperation of about fifty similarly equipped stations fairly evenly distributed over the land surfaces of the globe. This is an asset of considerable importance which we hope may continue to exist, and at the same time be able to assist the congress now sitting at The Hague.

THE IMMIGRATION OF SUMMER BIRDS.[1]

THIS second report is very similar to that first issued, which was noticed in NATURE for September 6, 1906. It has been prepared on the same lines, and is open, to a large extent, to the same criticism, though we are glad to observe that the various immigration movements are now associated with the weather conditions prevailing in countries south of the shores of the Channel.

In the best interests of the inquiry, and at the risk of again being considered "somewhat hostile," the writer would once more urge the committee to confine its labours for several years to come to the publication of the observations received, and to refrain from drawing conclusions of any kind from its present limited knowledge. It serves no useful purpose to mention that particular species arrived on certain sections of the coast only, for in all but a few cases their supposed absence merely indicates that they escaped the notice of the observers, and nothing more; they have long been known as immigrants on the sections of the coast from which the committee has not, as yet, received information concerning them. The publication of observations of this nature has already misled some who have but little knowledge on the subject; and so also has the statement that the few species which arrived on the south-east coast held a north-westerly course and so reached Wales! No proof is offered in support of this very remarkable speculation, nor is any worthy the name

[1] Report on the Immigrations of Summer Residents in the Spring of 1906. By a Committee appointed by the British Ornithologists' Club. (London: Witherby and Co., 1907.) Price 6s.